Name:

at1118paper: Complete the Square (v0)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 58x = -816$$

Add $\left(\frac{-58}{2}\right)^2$, which equals 841, to both sides of the equation.

$$x^2 - 58x + 841 = 25$$

Factor the left side.

$$(x - 29)^2 = 25$$

Undo the squaring. We need to consider both $\pm\sqrt{25}$.

$$x - 29 = -5 \quad \text{or} \quad x - 29 = 5$$
$$x = 24 \quad \text{or} \quad x = 34$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 6x = 352$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 46x = -528$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 22x \;=\; -57$$

Question 4

By completing the square, find both solutions to the given equation:

$$x^2 + 54x \;=\; 1387$$

Question 5

By completing the square, find both solutions to the given equation:

$$x^2 + 14x \;=\; -45$$

Question 6

By completing the square, find both solutions to the given equation:

$$x^2 + 58x \;=\; 248$$